

ALARM CIRCUIT RISER DIAGRAM

NO SCALE

NOTES:

- FSD AC POWER FROM CIRCUIT #25, PANEL 188A1A AS SHOWN IN DRAWING E2-1.
- ELECTRICAL SUBCONTRACTOR TO PROVIDE AC POWER, INTERPOSING RELAY AND SWITCH FOR EACH FSD AS SHOWN ON DRAWING FA0.02 (LBNL DRAWING 4B66E0117).

1) ONLY THE DEVICES PROVIDED FOR THIS PROJECT ARE SHOWN.

VOLTAGE DROP/POWER CALCULATIONS

NO SCALE

NOTIFICATION APPLIANCE CIRCUIT POWER REQUIREMENTS

DESCRIPTION	CURRENT PER APPLIANCE	# OF APPLIANCES		
		CIRCUIT V1	CIRCUIT V2	CIRCUIT A1
WHEELLOCK EXCEDER SERIES WALL STROBE 15 cd	0.057	2	2	0
WHEELLOCK EXCEDER SERIES WALL STROBE 30 cd	0.085	6	6	0
WHEELLOCK EXCEDER SERIES WALL STROBE 75 cd	0.135	0	0	0
WHEELLOCK EXCEDER SERIES WALL STROBE 110 cd	0.182	0	0	0
SIEMENS 6" SERIES MBDC MOTOR BELL	0.040	0	0	16
TOTAL CIRCUIT CURRENT		0.624	0.624	0.640

NOTES:

THE FOLLOWING NOTIFICATION APPLIANCES AND THEIR POWER DEMANDS WERE USED IN THE DESIGN:

- COOPER NOTIFICATION, WHEELLOCK EXCEDER SERIES STROBES; 15CD (0.057 AMP), 30CD (0.085 AMP), 75CD (0.135 AMP) & 110CD (0.182 AMP) WALL MOUNTED STROBE; RATED 16 TO 33 AMP.
- SIEMENS 6" SERIES MBDC MOTOR BELL (0.040 AMP); RATED 16 TO 33 AMP.

VOLTAGE DROP CALCULATIONS

{(I) (D) (Z1.6)}/CM

WHERE: I = CIRCUIT POWER LOAD Z1.6 = CONSTANT
D = CONDUCTOR ONE WAY DISTANCE CM = CROSS SECTION AREA OF WIRE (4110 FOR AWG#14)

NAC V1 {0.624 AMP} (650 FT) (21.64)}/4110	VOLTAGE DROP: 2.136 VOLTS	AVAILABLE VOLTAGE: 21.864 VOLTS
NAC V2 {0.732 AMP} (650 FT) (21.64)}/4110	VOLTAGE DROP: 2.136 VOLTS	AVAILABLE VOLTAGE: 21.864 VOLTS
NAC A1 {(0.640 AMP) (650 FT) (21.64)}/4110	VOLTAGE DROP: 2.190 VOLTS	AVAILABLE VOLTAGE: 21.810 VOLTS

THE CIRCUITS' AVAILABLE VOLTAGE IS ABOVE THE MINIMUM LISTED VOLTAGE FOR THE APPLIANCES.

GENERAL NOTES

IN GENERAL, WORK SHALL INCLUDE, BUT NOT BE LIMITED TO:

- THE DETAILED DESIGN, FABRICATION, PROCUREMENT, AND INSTALLATION OF THE FIRE PROTECTION SYSTEMS ADDITIONS AND MODIFICATIONS AS INDICATED ON THE CONTRACT DRAWINGS AND IN ACCORDANCE WITH LBNI FACILITIES STANDARD PROJECT SPECIFICATIONS.
- INSTALLATION OF NEW CONDUIT, RACEWAY SYSTEM MODIFICATIONS AND RACEWAYS FOR THE FIRE ALARM SYSTEM MODIFICATIONS.
- THE INSTALLATION OF OCCUPANT NOTIFICATION APPLIANCES AND DUCT SMOKE DETECTORS AS SHOWN IN THE DRAWINGS, ALL NECESSARY RACEWAY SYSTEMS (CONDUIT), THE NECESSARY POWER AND SUPERVISION CONNECTIONS FOR THE NEW NOTIFICATION APPLIANCE POWER PANEL, AND CONDUCTORS NECESSARY FOR THE INSTALLATION AND COMMUNICATION WITH THE EXISTING FACP LOCATED IN THE 1ST FLOOR (RM. 114) FOR THE FIRE ALARM SYSTEM MODIFICATIONS.
- ALL PENETRATIONS THROUGH WALLS, FLOORS, AND CEILINGS NECESSARY FOR THE INSTALLATION OF THE APPLIANCES INCLUDING THE INSTALLATION OF APPROVED FIRESTOP ASSEMBLIES NECESSARY TO MAINTAIN THE DESIGNED FIRE RESISTANCE RATING OF THE WALL, CEILING, OR FLOOR ASSEMBLY.
- SYSTEMS AND DEVICE TESTING.
- THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND IMPLEMENTING ALL SAFETY PROGRAMS AND PROCEDURES FOR THIS PROJECT AND SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY AND HEALTH REGULATIONS.
- THE CONTRACT DRAWINGS ARE DIAGRAMMATIC ONLY. SUBCONTRACTOR SHALL DETERMINE THE ACTUAL MEASUREMENTS AND MAKE ANY AND ALL SUCH LENGTH AND OFFSET ADJUSTMENTS AS MAY BE NECESSARY TO COMPLETE THE INSTALLATION AT NO CHANGE IN THE CONTRACT PRICE. THE DRAWINGS ARE NOT INTENDED TO RELIEVE THE SUBCONTRACTOR OF ANY RESPONSIBILITY FOR AVOIDING CONFLICTS OR OBSTRUCTIONS, OR FOR INSTALLING THE FIRE ALARM APPLIANCES AS REQUIRED.
- ALL EQUIPMENT SHALL BE NEW, AND APPROVED AND/OR LISTED BY UNDERWRITERS' LABORATORIES OR FACTORY MUTUAL.
- SYSTEM, EQUIPMENT, INSTALLATION, AND MATERIALS AND METHODS USED SHALL COMPLY WITH THE FOLLOWING:
 - THE REQUIREMENTS OF THE LAWRENCE BERKELEY NATIONAL LABORATORY.
 - NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 72 NATIONAL FIRE ALARM CODE, CURRENT EDITION.
 - CALIFORNIA BUILDING AND FIRE CODES, 2007 EDITIONS.
 - MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES.

NOTIFICATION APPLIANCE RISER DIAGRAM

NO SCALE

1) ONLY THE APPLIANCES PROVIDED FOR THIS PROJECT ARE SHOWN.

2) OCCUPANT NOTIFICATION APPLIANCES ARE BEING PROVIDED FOR LABORATORY AREAS, PUBLIC AND COMMON AREAS (I.E. CORRIDORS), AND ONLY IN THE AREA(S) EFFECTED BY THIS PROJECT. THE REMAINING SPACES ON THE FLOOR ARE NOT PROVIDED WITH NEW/REPLACEMENT OCCUPANT NOTIFICATION APPLIANCES.

3) THE NEW NOTIFICATION APPLIANCE POWER SUPPLY SHALL BE COOPER WHEELLOCK, PS-8. THE ALARM CONTACTS UTILIZED TO SIGNAL TROUBLE CONNECTIONS FOR THE POWER SUPPLY SHALL BE CONNECTED TO THE EXISTING FACP. THE POWER SUPPLY SHALL BE CONNECTED TO THE EXISTING NOTIFICATION APPLIANCE CIRCUIT TO CAUSE FOR ITS OPERATION. POWER SHALL BE SUPPLIED FROM AN EMERGENCY POWER SUPPLIED ELECTRICAL CIRCUIT.

TYPICAL APPLIANCE MOUNTING DETAIL

NO SCALE

ALL WALL MOUNTED NOTIFICATION APPLIANCES SHALL BE MOUNTED SO THAT THE ENTIRE LENS IS NOT LESS THAN 80-INCHES AFF.

LEGEND

15 cd

AV

NEW WALL MOUNTED NOTIFICATION APPLIANCE (BELL/STROBE)

15 cd

S

NEW WALL MOUNTED NOTIFICATION APPLIANCE (STROBE)

PWR

NEW NOTIFICATION APPLIANCE CIRCUIT POWER PANEL

FSD

NEW FIRE SMOKE DAMPER

DSD

NEW DUCT SMOKE DETECTOR

FACP

EXISTING FIRE ALARM CONTROL UNIT

BI

EXISTING NOTIFICATION APPLIANCE (BELL)

MP

EXISTING MANUAL PULL STATION

SD

EXISTING SMOKE DETECTOR

NEW 3/4 INCH FIRE ALARM CONDUIT

CONDUCTOR IDENTIFICATION LEGEND

V11 PAIR #14 NOTIFICATION APPLIANCE CIRCUIT CONDUCTORS (OXT V1)

2-A12 PAIR #14 NOTIFICATION APPLIANCE CIRCUIT CONDUCTORS (OXT A1)

TYPICAL NOTIFICATION APPLIANCE DETAIL

NO SCALE

TYPICAL SYNCH MODULE DETAIL

NO SCALE

NOTES:

- SYNCH VISUAL APPLIANCES, ONLY. NEW BELLS WILL UTILIZE THE EXISTING BELL CIRCUIT ON THE SYSTEM 3 PANEL.
- SYNCH MODULE(S) TO BE MOUNTED ON THE WALL ADJACENT TO THE EXISTING FACP ON THE 1ST FLOOR.

KEYPLAN

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Exp. 9/30/10
STATE OF CALIFORNIA

AS-BUILT
DRAWING

PROFESSIONAL SEAL
(IF REVISION APPLIES ONLY TO REVED WORK)

REVISION NUMBER

DRAWN BY

CHECKED BY

APPROD BY

DATE

REMARKS

HYT

HYT

06.21.10

ASI #3 RE-DESIGN FOR CONSTRUCTION

HYT

HYT

06.01.10

ASI #3 RE-DESIGN PRELIMINARY

HYT

HYT

04.08.10

ASI #2 RE-DESIGN PRELIMINARY

HYT

HYT

11.13.09

REVISION #2

HYT

HYT

10.30.09

REVISION #1

66
LBNI BLDG 66 2ND FL. REMODEL
FIRE ALARM
GENERAL NOTES, LEGEND, DETAILS

LAWRENCE BERKELEY NATIONAL LABORATORY
FACILITIES DIVISION

DRAWN BY
DWH

CHECKED BY
BBT

CAD FILE PATH

SCALE
1/8" = 1'-0"

DRAWING NO.
4B66E169

PROJECT NO.
FM9002

DATE
3/28/2011

SHEET
FA0.00